

Graphing and Analysis of Data on the TI-82/83/84

Graphing a scatterplot

1. Input data into the calculator. **STAT/EDIT** enters the lists and allows you to put in or modify data. Typically **L₁** is used for the x axis and **L₂** is used for the y axis, although any of the lists may be used.

L1	L2	L3	1
1	-----	-----	
2			
3			
4			
5			
6			
7			
8			
L1(3)=4			

2. The **y=** editor is where functions are entered to graph. When performing a scatterplot of data the **y=** should be cleared out.

Plot1	Plot2	Plot3
Y1=	1X+7	
Y2=		
Y3=		
Y4=		
Y5=		
Y6=		
Y7=		

3. **STAT PLOT (2nd, y=)** is used to turn on the graph plots and select the parameters of the graph. First turn on a plot (typically Plot 1, but as many as three plots may be used simultaneously). Next select the type of graph (usually a scatterplot), the data list for the x axis, the data list for the y axis and the mark used for the data points.

Plot1	Plot2	Plot3
On	Off	
Type:		
Xlist:	L3	
Ylist:	L2	
Mark:	+	

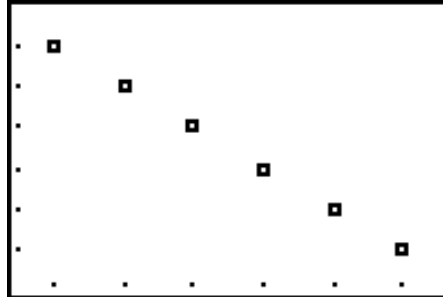
4. **WINDOW** is used to set the minimum and maximum values for x and y, along with the scaling of the graph. This should be based upon the data. An alternate method is to use **ZOOM, 9: ZoomStat** which automatically fits the window to the data. Use this method with caution, it may lead to incorrect conclusions regarding your data.

```

WINDOW
Xmin=-10
Xmax=10
Xscl=1
Ymin=-10
Ymax=10
Yscl=1
Xres=1

```

5. **GRAPH** is used to display the scatterplot. If you have problems, review the steps 1-4 above.



Calculating a mathematical model for the data.

1. **STAT/CALC** allows you to have the calculator compute a function to fit the data using a variety of regression models. First select a regression model from the **STAT/CALC** menu. The most common varieties used in science would be Linear (**LinReg**), Power (**PwrReg**) Quadratic (**QuadReg**) and Exponential Regressions (**ExpReg**).

```

EDIT 1-Var Stats
2: 2-Var Stats
3: Med-Med
4: LinReg(ax+b)
5: QuadReg
6: CubicReg
7: QuartReg

```

2. The regression model will be calculated based upon data in **L₁** and **L₂** unless otherwise stated.

```

LinReg
y=ax+b
a=-1
b=7

```

3. **LinReg(ax+b) L₂,L₁** : for example would have the calculator figure the regression using data from lists 2 and 1.

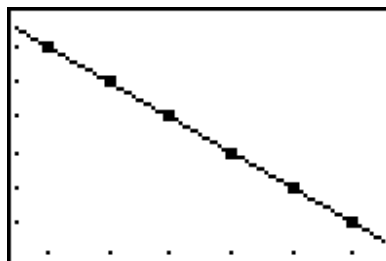
```
LinReg(ax+b) L2,
L1
```

Drawing a line of best fit for the data

1. The regression equation previously calculated must be pasted into the **y=** editor.
2. Enter the **y=** editor and make sure it has been completely cleared out.
3. **VARs/STATISTICS/EQ/RegEQ** are the keystrokes needed for the TI-82. This takes the last regression equation calculated and pastes it into the **y=** editor. Remember that it will paste the last equation calculated. Several equations can be calculated and pasted into **Y₁**, **Y₂**, **Y₃** etc.
4. There is an alternate method for the TI-83/84. Once the **STAT/CALC** menu displays **LinReg(ax+b)**; use the following keystrokes: **VARs / Y-VARS / Function / Y₁**. This will have the calculator compute the regression and paste it into **Y₁** of the **y=** editor in one step.

```
LinReg(ax+b) L1,
L2,Y1
```

4. **GRAPH** will now draw the scatterplot and the regression line (or curve) of best fit.



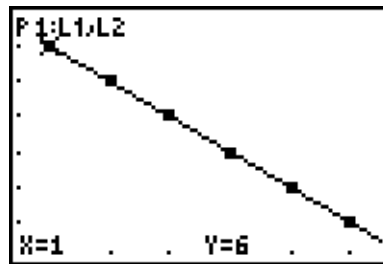
Using the Graph Function Editor

1. The **y=** editor allows you to input a function for the calculator to graph.
2. Several functions may be entered and graphed simultaneously.

3. The viewing **WINDOW** may need to be adjusted to view desired regions of the graph.
4. The command **ZOOM, 6** will set a standard viewing window.
5. Graph plots will need to be turned off using **STAT PLOT** if only the function graph will be viewed.
6. The **GRAPH** command will display the graph of the function.

Using Trace and Calculate

1. The **TRACE** command allows you to scroll along a graph and read coordinates. The arrow keys are used to scroll along the graph.
2. Trace may be used with a function graph and also with a stat plot .



3. The **CALC (2nd TRACE)** command performs calculations related to the functions stored in the **y=** editor.
4. The **value** option under the the calculate menu will prompt you for an X value and will solve the function for the Y value.
5. The **intersect** option under the calculate menu will determine the intersection point of two graphs.
6. Other commands may also be utilized in more complicated situations.

Using Table Building

1. As long as there are functions in the graph function (**y=**) editor, tables of values can be created easily.
2. The **TABLE SET** command (**2nd WINDOW**) allows you to set the minimum value for the table and the interval between values displayed.
3. The **TABLE** feature (**2nd GRAPH**) will display values calculated from the functions in the **y=** editor. You can scroll through the table using the up and down arrows.